

Dr. Duke's Phytochemical and Ethnobotanical Database

Chemicals Found in *Aesculus hippocastanum*

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
30	(+)-CATECHIN	Bark	--	--		Jim Duke's personal files.
30	(+)-CATECHIN	Leaf	--	--		Jim Duke's personal files.
30	(+)-CATECHIN	Fruit Epidermis	--	--		Jim Duke's personal files.
38	(-)-EPICATECHIN	Bark	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
38	(-)-EPICATECHIN	Fruit Epidermis	--	--		Jim Duke's personal files.
38	(-)-EPICATECHIN	Leaf	--	--		Jim Duke's personal files.
38	(-)-EPICATECHIN	Seed Coat	816.3	4000		Jim Duke's personal files.
1	6,7-DIHYDROXYCOUMARIN	Seed	--	--		
16	ACETIC-ACID	Seed	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
11	ADENINE	Flower	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
11	ADENINE	Seed	--	--		
28	ADENOSINE	Flower	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
28	ADENOSINE	Seed	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
50	AESCIN	Bark	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
50	AESCIN	Seed	--	130000		
32	AESCULETIN	Bark	--	--		Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.
1	AESCULETOL	Seed	--	--		
33	AESCULIN	Bark	--	30000		Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.
3	AESCULOSIDE	Seed	--	--		
12	ALLANTOIN	Leaf	--	--		Jim Duke's personal files.
12	ALLANTOIN	Branches	--	--		Jim Duke's personal files.
12	ALLANTOIN	Bark	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
7	ALPHA-CAROTENE	Leaf	--	--		Jim Duke's personal files.
28	ALPHA-PINENE	Flower Essent. Oil	--	177000	1	Jim Duke's personal files.
2	ALPHA-SPINASTEROL	Seed	--	--		Jim Duke's personal files.
2	ALPHA-SPINASTEROL	Bark	--	--		Jim Duke's personal files.
1	ANGELIC-ACID	Seed	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
112	ASCORBIC-ACID	Seed	--	24	-0.32404827353208815	Jim Duke's personal files.
112	ASCORBIC-ACID	Leaf	--	147.2	-0.4302618126885385	Jim Duke's personal files.
7	ASTRAGALIN	Flower	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	BARRINGTOGENOL-C-21-ANGELATE	Fruit	--	4.7		Jim Duke's personal files.
24	BENZALDEHYDE	Flower Essent. Oil	--	11000		Jim Duke's personal files.
1	BENZYL-FORMATE	Flower Essent. Oil	--	22000		Jim Duke's personal files.
8	BETA-AESCIN	Seed	--	--		
9	BETA-AMYRIN	Bark	--	--		
9	BETA-AMYRIN	Seed Oil	--	--		Jim Duke's personal files.
13	BETA-PINENE	Flower Essent. Oil	--	122000		Jim Duke's personal files.
47	BETA-SITOSTEROL	Bark	--	--		Jim Duke's personal files.
47	BETA-SITOSTEROL	Seed	--	--		Jim Duke's personal files.
47	BETA-SITOSTEROL	Leaf	--	--		Jim Duke's personal files.
2	CAMPESTEROL	Seed	--	--		Jim Duke's personal files.
2	CAMPESTEROL	Leaf	--	--		Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	CAMPESTEROL	Bark	--	--		Jim Duke's personal files.
9	CAMPHENE	Flower Essent. Oil	--	83000		Jim Duke's personal files.
1	CHOLESTEROL	Bark	--	--		Jim Duke's personal files.
1	CHOLESTEROL	Seed	--	--		Jim Duke's personal files.
20	CHOLINE	Flower	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
4	CINNAMTANNIN-B-1	Seed Coat	--	408.2		Jim Duke's personal files.
2	CINNAMTANNIN-B-2	Seed Coat	--	132.7		Jim Duke's personal files.
23	CITRIC-ACID	Bark	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	CRYPTOAESCIN	Seed	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	CRYPTOAESCIN-A	Seed	--	--		
7	CYANIDIN	Leaf	--	--		Jim Duke's personal files.
1	ELEUTHEROSIDE-B-1	Stem	--	--		Jim Duke's personal files.
40	EPICATECHIN	Bark	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
40	ESCIN	Bark	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
40	ESCIN	Leaf	--	--		Jim Duke's personal files.
40	ESCIN	Seed	22000	125300		Jim Duke's personal files.
40	ESCIN	Tissue Culture	--	--		Jim Duke's personal files.
30	ESCULETIN	Bark	--	--		
30	ESCULETIN	Seed	--	--		Jim Duke's personal files.
29	ESCULIN	Seed	--	--		Jim Duke's personal files.
29	ESCULIN	Bark	30000	30000		
29	ESCULIN	Pericarp	--	--		Jim Duke's personal files.
29	ESCULIN	Stem	--	--		Jim Duke's personal files.
12	FRAXETIN	Bark	--	--		
10	FRAXIN	Pericarp	--	--		Jim Duke's personal files.
10	FRAXIN	Bark	--	--		
10	FRAXIN	Stem	--	--		Jim Duke's personal files.
10	FRAXIN	Seed	--	--		Jim Duke's personal files.
2	FRIEDELIN	Seed	--	--		
1	GALACTOSE	Pericarp	--	--		Jim Duke's personal files.
1	GALACTOSE	Seed	--	--		
35	GERANIOL	Flower Essent. Oil	--	4000		Jim Duke's personal files.
7	GLUCOSE	Seed	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	GLUCURONIC-ACID	Seed	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	GUANINE	Seed	--	--		
1	GUANINE	Flower	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	HIPPOCAESCULIN	Fruit	--	3.1		Jim Duke's personal files.
7	HISTIDINE	Leaf	--	--		Jim Duke's personal files.
22	ISOQUERCITRIN	Leaf	--	--		Jim Duke's personal files.
22	ISOQUERCITRIN	Flower	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
11	ISORHAMNETIN	Bud	--	--		Jim Duke's personal files.
1	JUGLANIN	Plant	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
75	KAEMPFEROL	Seed	--	--		
75	KAEMPFEROL	Bud	--	--		Jim Duke's personal files.
4	KAEMPFEROL-3-O-GLUCOSIDE	Flower	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	KAEMPFEROL-3-RHAMNOGLUCOSIDE	Flower	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
7	LAURIC-ACID	Leaf	--	--		Jim Duke's personal files.
1	LEUCOCYANIDIN	Bark	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
2	LEUCODELPHINIDIN	Bark	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
60	LIMONENE	Flower Essent. Oil	--	42000	-1.4135017793261806	Jim Duke's personal files.
27	LINOLEIC-ACID	Seed	--	6415	-0.8628692587662965	
27	LINOLEIC-ACID	Leaf	--	--		Jim Duke's personal files.
3	LUTEOLOL	Seed	--	--		
34	MYRICETIN	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
6	MYRISTIC-ACID	Leaf	--	--		Jim Duke's personal files.
18	OLEIC-ACID	Seed	--	18990	-0.8229912615024234	
25	OPCS	Seed	--	--		Gruenwald, J. et al. 1998. PDR for Herbal Medicine. 1st ed. Medical Economics Co., Montvale, NJ. 1244 pp. (abbreviated as PHR or Physicians Herbal Reference in my mind)
13	PALMITIC-ACID	Leaf	--	--		Jim Duke's personal files.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
13	PALMITIC-ACID	Seed	--	1245	-0.6739126598848639	
2	PALMITOLEIC-ACID	Leaf	--	--		Jim Duke's personal files.
2	PHYTOSTEROLS	Plant	--	--		Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
17	PROCYANIDIN-A-2	Fruit	--	--		Jim Duke's personal files.
17	PROCYANIDIN-A-2	Seed Coat	510.2	1733.3		Jim Duke's personal files.
17	PROCYANIDIN-A-2	Leaf	--	--		Jim Duke's personal files.
17	PROCYANIDIN-A-2	Fruit Epidermis	--	--		Jim Duke's personal files.
1	PROCYANIDIN-B-1	Seed Coat	--	240		Jim Duke's personal files.
1	PROCYANIDIN-B-1	Leaf	--	--		Jim Duke's personal files.
1	PROCYANIDIN-B-1	Fruit Epidermis	--	--		Jim Duke's personal files.
1	PROCYANIDIN-B-2	Leaf	--	--		Jim Duke's personal files.
1	PROCYANIDIN-B-2	Fruit Epidermis	--	--		Jim Duke's personal files.
1	PROCYANIDIN-B-2	Seed Coat	612.2	3066.7		Jim Duke's personal files.
2	PROCYANIDIN-B-3	Leaf	--	--		Jim Duke's personal files.
2	PROCYANIDIN-B-3	Fruit Epidermis	--	--		Jim Duke's personal files.
4	PROCYANIDIN-B-4	Leaf	--	--		Jim Duke's personal files.
4	PROCYANIDIN-B-4	Fruit Epidermis	--	--		Jim Duke's personal files.
1	PROCYANIDIN-D2	Leaf	--	--		Jim Duke's personal files.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	PROCYANIDIN-D2	Fruit Epidermis	--	--		Jim Duke's personal files.
176	QUERCETIN	Seed	--	--		Jim Duke's personal files.
176	QUERCETIN	Bark	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
2	QUERCETIN-3'-GLUCOSIDE	Leaf	--	--		Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.
1	QUERCETIN-3,3'-DIMETHYLETHER	Bud	--	--		Jim Duke's personal files.
1	QUERCETOL	Seed	--	--		
1	QUERCETOSIDE	Seed	--	--		
44	QUERCITRIN	Leaf	--	--		
44	QUERCITRIN	Bark	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
44	QUERCITRIN	Seed	--	--		
1	RHAMNETOL	Seed	--	--		
7	RHAMNOCITRIN	Bud	--	--		Jim Duke's personal files.
7	RHAMNOCITRIN	Flower	--	--		Jim Duke's personal files.
87	RUTIN	Plant	--	--		Jim Duke's personal files.
87	RUTIN	Flower	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

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4	RUTOSIDE	Seed	--	--		
5	SAPONINS	Seed	55000	260000	3.4837614172571465	
44	SCOPOLETIN	Bark	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
3	SCOPOLIN	Bark	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
3	SCOPOLIN	Pericarp	--	--		Jim Duke's personal files.
1	SERINE	Leaf	--	--		Jim Duke's personal files.
1	STACHYOSE	Seed	--	--		Gruenwald, J. et al. 1998. PDR for Herbal Medicine. 1st ed. Medical Economics Co., Montvale, NJ. 1244 pp. (abbreviated as PHR or Physicians Herbal Reference in my mind)
5	STARCH	Seed	300000	600000	1.1736828138582762	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
8	STEARIC-ACID	Seed	--	1015	-0.5433679869069411	
8	STEARIC-ACID	Leaf	--	--		Jim Duke's personal files.
1	STIGMAST-4-EN-3-ONE	Seed	--	--		Jim Duke's personal files.
12	STIGMASTEROL	Bark	--	--		Jim Duke's personal files.
12	STIGMASTEROL	Leaf	--	--		Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.

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12	STIGMASTEROL	Seed	--	--		Jim Duke's personal files.
14	SUCROSE	Branches	--	--		Jim Duke's personal files.
35	TANNIN	Flower	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
35	TANNIN	Wood	--	--		Jim Duke's personal files.
2	TARAXEROL	Seed Oil	--	--		Jim Duke's personal files.
2	TARAXEROL	Seed	--	--		
1	TIGLIC-ACID	Seed	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	XANTHORHAMNOSIDE	Seed	--	--		
3	XYLOSE	Seed	--	--		